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AUTHOR Selig, Harry M.; And Others
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ABSTRACT

This paper attempts to identify the inferential logic used by first-grade teachers in forming expectations about student achievement. Data for this study was obtained from an earlier study in which 74 first-grade teachers were divided into two groups to investigate factors that are related to the formation of first-grade teachers' expectations of their students' academic performance. Forty-six teachers responded to questionnaires, and the remaining 28 were interviewed using the free response format. The free response interviews were coded for types of inferences. The two types of causality in events as distinguished by Heider are personal and impersonal causality. It was concluded from this study that in terms of personal and environmental forces, teachers tend to make inferences reflecting personal causality for students perceived to be doing well or average. Causal inferences for for students perceived to ge doing poorly in school also reflect personal causality; however, as the year progressed, causality was increasingly attributed to environmental forces. The first-grade teachers in this study preferred attributing failure to environmental forces. The pattern of causal inferences indicated that first-grade teachers' expectations differentially reflect personal and environmental forces. If a teacher expects a student to do well or average in first-grade, these expectations will be based on characteristics that the teacher believes the student can control. (SK)

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Causal Inferences of First Grade Teachers

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Harry M. Selig

Jere E. Brophy

Sherry L. Willis

SP 010 260

Report No. 76-4

The Research and Development Center for Teacher Education

The University of Texas at Austin

The main objective of the CORRELATES OF EFFECTIVE TEACHING PROJECT is to expand the number of teaching principles based on documented findings from systematic classroom research. The problems and processes studied have been selected on the basis of observation and consultation with teachers and school personnel. Emphasis is on the study of the classroom to discover how these processes can be conducted to the greatest advantage of teachers and individual students.

One of the project's major efforts was a two-year study of teaching effectiveness involving the examination of the classroom behavior of teachers consistent in producing student learning gains.

Since 1974 three other major data collection efforts were initiated and completed.

(1) STUDENT ATTRIBUTE STUDY which looked at student characteristics and behaviors and their effects on teachers.

(2) FIRST GRADE READING GROUP STUDY, an experimental study designed to test the effectiveness of selected group management techniques in teaching reading.

(3) JUNIOR HIGH SCHOOL STUDY, a follow up on earlier work from the second and third grades of the influence of teacher characteristics and behavior on students' cognitive and affective gains.

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Causal Inferences of First Grade Teachers

Heider (1958) has developed what he refers to as naive or common sense psychology to explain the process an individual follows to attribute causality. Attribution of causality manifests itself in causal inferences. Causal inferences are made to explain events, attributing causality to sources perceived to be responsible for a given outcome. These sources may be found in personal forces, environmental forces or both. Personal forces are made up of qualities associated with the individual. Environmental forces are comprised of stimuli in the environment which influence perception of an event.

Perception

In order to ascribe causality, the person must be able to perceive the event. Dispositional qualities in the environment which affect perception, that is, those qualities which show relative invariance include factors such as shape, color, and size of the perceived object. Psychological dispositional properties involved in perception include characteristics such as traits, motives, sentiments, and wishes.

Heider (1958) accounts for individual differences in perception through differences in perceptual styles. Differences in perceptual styles are a result of idiosyncratic approaches to the world. Chowdry and Newcomb (1952) demonstrated how differences in perceptual styles differentiate leaders and non-leaders in a group. Members of various groups were asked to evaluate the groups' attitudes on a number of issues which ranged from high to low rele-

vance to the group. Those members judged to be leaders of the groups were superior to non-leaders in evaluating the groups' opinions on issues which were familiar and relevant to the group. There were no differences between leaders and non-leaders on issues which were relatively unfamiliar or non-relevant to the group. Chowdry and Newcomb (1952) conclude that leaders possess a superior ability to evaluate group opinion and attitudes and personality characteristics which enable them to more fully communicate with group members.

Tagiuri (1969) describes the process of perception between the observer and the other person as one of dyadic interplay between the two parties. The observer and the observed are simultaneously observed and observer. Perceptions are formed by both parties. Their reciprocal feedback modifies the manner in which they present themselves in a continuing recycling process. During this process, each person uses variations of himself as a means of validating his hypotheses about the other.

Analysis of action

Analysis of action in naive psychology also takes into account personal and environmental forces. However, personal and environmental forces do not possess the same status. Effective personal forces show traits of personal causality, and the environmental forces lack this quality.

The attribution of causality in the personal forces is made up of power and motivational factors. Power, which also includes ability, in combination with difficulty exerted by the environment is referred to by Heider (1958) as can. Motivational factors are referred to as trying. Ability, a main

power factor, is a dispositional concept. While relatively enduring, there are facets of ability which are less permanently a part of the person, such as knowledge.

Heider (1958) distinguishes two types of causality in events. These are personal and impersonal causality. Referring to the dichotomy between personal and environmental forces, personal causality would be attributed to personal forces such as power and motivation. Impersonal causality would be attributed to environmental forces such as shape and color.

A further distinction between personal and impersonal causality can be found in the initial focus of perception. The initial focus in impersonal causality is in the environment. The environment controls nothing although the divergent part of the process, multifinality, is connected to it. The initial focus in personal causality is the intention. Intention controls everything in the action sequence.

A final distinction between personal and impersonal causality is the presence, in personal causality, of cognitive characteristics of attribution within the observer. As Tagiuri (1969) has pointed out, some of these characteristics manifest themselves as properties of an implicit personality theory. The first of these properties is a tendency to maximize balance and avoid dissonance of elements. Second is an inclination, under certain circumstances to assume similarity with the other person. Third is a tendency to form stereotypes and fourth is the tendency to judge the other person in terms of a base-line for that person.

A large factor in the tendency to maximize balance and minimize dissonance is the perception of some traits as more central than others. Asch (1946)

demonstrated the perception of central traits in a series of experiments in which lists of characteristics varying in the number of similar traits were read to groups of subjects. When traits judged to be central were changed in the list, the impressions formed by the subjects changed accordingly. Central traits were found to determine the content and function of other traits.

Crandall (1970) investigated the centrality of certain traits and their utility to infer peripheral traits. In the first of two experiments, he had subjects rank eight traits along three variables: importance and predictive value, and confirmability of the trait. He found the importance and predictive value of a trait very strongly related. There was a high correlation ($r=.64$) between traits rated important and high in predictive value. In the second experiment, he had subjects rate the number of times a series of traits were found useful to infer other traits. His results indicate that traits judged to be most important to have the highest number of predictions.

In an effort to determine a general global trait of perceiving others, Cline and Richards (1960) discovered two components in the general ability to perceive others accurately. Subjects were instructed to view films of interviews of people and complete rating forms. They found two components involved in perceiving others accurately; stereotype accuracy and differential accuracy. Stereotype accuracy was defined as the ability to predict deviation from the grand mean of the mean of individual traits. Differential accuracy was defined as the ability to predict differences between judges on each trait considered separately. According to Cline and Richards (1960) the two components are relatively independent. A good judge may be accurate

because he has an accurate stereotype, or because he is able to predict specific differences between individuals, or both.

Two types of errors are possible in the tendency to maximize balance and minimize dissonance. These are the halo phenomenon and logical error. The halo phenomenon is produced by the spreading of the perception of one trait over a number of other traits. Tagiuri (1969) describes a logical error as an error based on an established conception of what traits go with others.

Another cognitive characteristic of attribution is the primacy effect of a trait. Tagiuri (1969) describes the primacy effect as the tendency of data presented at the beginning to remain as a salient feature, unless strongly contradicted. Asch (1946) studied the primacy effect in an experiment in which identical lists of characteristics were read to two groups of subjects, varying only the succession of characteristics. He found that the first terms set up a direction which exerts an effect on later items. The first terms create a broad impression and the latter items are related to this impression. The view acquires stability so that the latter terms are fitted in if they are not highly contradicted.

Motivational factors have so far only been mentioned briefly in the discussion of the attribution of causality; however, they also play a large part in this process. Heider (1958) refers to motivational factors as <u>trying</u>. The factors in <u>trying</u> are intentions and exertion. Intentions describe what the person is trying to do. Exertion describes how hard he is trying.

Causality is not attributed totally to the person or to the environment. Heider (1958) has described a successive series of stages in which attribution

to the person decreases and attribution to the environment increases. The person is held most accountable at the global concept of responsibility. This means he is responsible for each effect and anything connected with him. At the next level, anything caused by the person is ascribed to him. At the third level, the person is only responsible for the aftereffects of his actions. Next, the person is only held responsible only for what he intended. The person is held least responsible when his motives are not entirely ascribed to him. Throughout these levels, the environment is increasingly attributed more responsibility for the event.

As Tagiuri (1969) observes, when the person and the environment are taken separately, each source yields non-random but indeterminant judgments. Taken together, they yield highly determinant judgments. These judgments are highly consensual and functional.

Teacher expectations and causality

Attribution of causality is a human and very common characteristic. Attribution of causality, or causal inferences, provide a key step in the formation of teacher expectations. The existence and effects of teacher expectations have been discussed in depth elsewhere (Finn, 1972; Brophy and Good, 1974). The present discussion will be limited to the role of causal inferences in teacher expectations.

Brophy and Good (1974) have developed a model of teacher expectations which consists of five steps. The process begins at the beginning of the school year when the teacher receives information about her students. This information includes past performance, observations by former teachers, and

the teacher's own impressions at the beginning of the year. Next, as a result of expectations formed at the beginning of the year, the teacher will treat different students differentially.

In the third step of the model, the students in the class treat the teacher differentially. This is partly a result of the student's personality and partly a result of the teacher's treatment of the student. The student's response to the teacher tends to be reciprocal. In the next step of the model, the student responds to the teacher with behavior that complements and reinforces the teacher's expectations.

Finally, the differential effect of the teacher's expectations on her students will be manifested in terms of student performance in one of the following ways. In the case of those teachers whose expectations are appropriate or inappropriate but not rigid, student performance will be predictable on the basis of past performance. In those cases where the teacher's expectations are inappropriate and rigid, it is highly probable there will be one of two outcomes. If the expectations are inappropriately high, depending on the type and frequency of the interactions, the student may do better than expected but at emotional expense. If the expectations are inappropriately low, with fewer interactions, more criticism, and less praise, the student is likely to show a drop in performance.

Causal inferences begin to be made with the input of information from various sources. These inferences develop into expectations. As described earlier, causal inferences tend to be formed on an intuitive basis using information gained from the environment and the observer's own characteristics. Causal inferences tend to be simple and relatively uncomplicated. Jackson

(1968) notes that there is a conceptual simplicity in the teacher's views of the classroom. He interviewed teachers considered superior by supervisors and administrators. Four aspects of the teacher's conceptual simplicity include:

1. An uncomplicated view of causality.
2. An intuitive rather than rational view of classroom interactions.
3. An opinionated rather than open minded view of alternative methods to teaching.
4. Narrowness in working definitions assigned to abstract terms.

According to Jackson (1968), the focus of the teacher's concern is on the concrete group of students.

Studies of teacher's annoyances and preferences lend support to Jackson's (1968) observations of conceptual simplicity and concrete orientation. When asked to list annoyances and preferences, teachers tend to list concrete behaviors rather than abstract concepts.

Kaplan (1952) studied the annoyances of classroom teachers. Annoyances listed by over two thirds of the teachers in the study included not completing assignments; antisocial behaviors such as stealing, cheating, and lying; daydreaming and lack of attention; instances of aggressiveness; instances involving destructiveness; and non-conformity. Annoyances listed by one half of the teachers included selfishness, acts of physical aggression, sullenness, timidity, interruptions, and defiance or opposition to the teacher's authority.

Preferences in personality traits include extroversion, sensing, thinking, and judgment (Shain, 1973). In a study of factors affecting teachers' percep-

tions of students, Glass (1967) found that teachers are primarily concerned with behaviors that occur in school, especially disruptive behavior. Teachers appear to be less concerned with behavior outside of the school.

On the basis of causal inferences formed at the beginning of school, the teacher's expectations begin to develop, and differential treatment of the students begins. As the students are treated differentially, their responses tend to confirm the teacher's expectations and reinforce the process used to make causal inferences. As the year progresses, the teacher continues to make causal inferences based on the information she has already accrued. If the teacher's perceptions of her students are accurate, her inferences of causality will also be accurate, leading to realistic expectations. If her perception of the classroom is inaccurate, her inferences of causality will be inaccurate, leading to false or unrealistic expectations regarding the performance of her students.

The present study seeks to determine the types of causal inferences made by first grade teachers with respect to the student's perceived academic performance. Causal inferences made by the teachers were gathered from interviews conducted at three periods during the school year. The first period occurred during the first two weeks of school. The second period occurred after the teachers had scored their students' Metropolitan Readiness Tests, approximately one month to six weeks after school started. The third period occurred during the middle of the year. Inferences gathered from the interviews were studied for differences between groups of students varying in perceived levels of achievement.

Method

Data for the present study were obtained from an earlier study of teachers' expectations (Willis, 1972, Note 1). Willis investigated factors which are related to the formation of first grade teachers' expectations of their students' academic performance. In her study, the subjects were 74 first grade teachers in the Memphis Public School System and the Shelby County School System. The teachers were divided into two groups: 46 teachers responded to questionnaires and the remaining 28 teachers were interviewed using a free response format. Interviews were conducted at three different times during the school year. The first interview period occurred during the first two weeks of school. The second interview took place one to two weeks after the Metropolitan Readiness Tests had been scored by the teachers, approximately one month after school started. The third interview was conducted in the middle of the school year. Although 28 teachers were interviewed in the original study, interviews of 27 teachers from the first period and 26 from the second and third periods were available for the present study.

The free response interviews were coded for types of causal inferences. A causal inference is a statement which reflects a cause and effect relationship to account for a student's behavior. A cause and effect relationship can be stated as a prediction, an "if...then" statement, or an explanatory description of the student's performance. Each type of inference includes a description of the student's present or predicted performance level and a rationale for the performance. Examples of predicting causal inferences include:

"Her work is very neat, she will be a top student."

"He can't understand simple directions, he'll have to repeat first grade."

Examples of "if...then" inferences include:

"If he would settle down, then he would make an excellent student."

"If she does not make a greater effort, she will do poorly in school."

Examples of explanatory inferences include:

"He is a top student, he knew how to read when he started school."

"She's an average student, very quiet and needs confidence."

Interviews were initially read to determine the types and frequencies of individual inferences. After the initial tally of inferences was made, the Teacher Inference Coding Instrument was developed to code the inferences (see Appendix). The Teacher Inference Coding Instrument was used to code the presence or absence of specific types of inferences and the total number of inferences in each division of the three categories. Inferences were coded by the first author and a representative sample of the interviews were coded for inferences by a second coder to establish reliability. Reliability was determined by the number of agreements divided by the number of agreements plus disagreements. Agreement on recognition of an inference was quite high, approaching 100%. Intercoder reliability for specific inferences was satisfactory -- 71%. Disagreements largely resulted from more codes made by the first author rather than contradictions in coding.

The types of causal inferences coded in the present study were divided into three categories: Well, Average, and Poorly. Each of these categories describe the conclusions of the teachers' inferences in terms of

perceived student performance. Inferences included in the Well category indicated superior performance in the quality of the student's work or a top position in relation to the rest of the class. Inferences in the Average category indicated average performance in the quality of the student's work or a middle position in relation to the rest of the class. Inferences included in the Poorly category indicated poor quality of work, low position in relation to the rest of the class, or prediction of failure.

There were three divisions within each category. These were Home, School, and Personality. Each of these divisions describes the source of the inference. Inferences in the Home division are related to the student's home life. The School division included those inferences related to work habits and school or classroom activities. The inferences in the Personality division describe the student's personality and social characteristics.

Statistical Analyses

Distribution statistics using the VSTAT computer program of DISTAT (Veldman, 1974) were computed to determine the percentage of teachers who used each specific inference and the total number of inferences made by the teachers in each division. The VSTAT computer program of CHICHI (Veldman, 1974) was used to compute chi-square analyses of the total number of inferences and the percentage of teachers making one or more inferences. The total number of inferences were analyzed across categories, across interviews, across categories within interviews, across interviews within categories, and across sex within each division of each interview. The percentage of teachers making one or more inferences was compared to teachers who made

no inferences within each division for boys and girls considered together and separately.

Results

Total number of inferences

Chi-square analysis of the total number of inferences across interviews yielded significant results ($p < .001$) (see Table 1). The number of inferences increased as the year progressed. The least number of inferences were made in the first interview period and the greatest number of inferences occurred in the third interview period.

The chi-square for the total number of inferences in each category also was significant ($p < .001$) (see Table 1). The greatest number of inferences were made in the Well category, followed by the Average category. The least number of inferences were made in the Poorly category.

Chi-square analysis of the total number of inferences within interviews and across categories yielded significant results ($p < .05$) only in the second interview set (see Table 2). There were more inferences in the Home, School, and Personality divisions of the Average category than in the same divisions in the Well and Poorly categories of the first interview. In the first and third interviews, although not significant, there tended to be more inferences in the Well category.

Chi-square analysis of the categories across interviews did not yield significant results although the Well category had a probability value of .0516 (see Table 2). However, all three categories exhibited the same trend: as the school year progressed, the number of inferences increased. Consistent

increases in the number of inferences occurred in the School division of the Well category and the School and Personality divisions of the Poorly category, where there is a definite upward trend in the number of inferences across all three interviews. The Home and Personality divisions of the Well category showed large increases only from the second to third interviews. Increases from the first to the second interview occurred in all three divisions of the Average category and the Home division of the Poorly category, followed by a leveling or slight decrease in the third interview.

Sex Differences

The only significant difference between girls and boys in the Well category was in the Personality division of the second interview ($p < .05$) (see Table 3). Girls received significantly more inferences than boys in the Personality division of the second interview. Although the other comparisons in the Well category were not significant, girls received more inferences than boys in nearly all the divisions in the three sets of interviews. The only divisions in which this was not the case were the Home and Personality divisions in the first interview set, and in these cases the differences were negligible.

There were four divisions with significant differences between girls and boys in the Average category. These divisions were the School and Personality divisions in the second interview ($p < .01$) and the School and Personality divisions in the third interview ($p < .05$). In all four divisions, boys received more inferences than the girls. Unlike the Well category, the trend did not continue in the divisions where differences were not significant.

There were three divisions with significant differences between girls and boys in the Poorly category. These divisions were the School division ($p < .05$) in the second interview and the School division ($p < .01$) and Personality division ($p < .05$) in the third interview. In all three divisions boys received more inferences than girls. There were three other divisions which, while not significant, exhibited the same trend. These were the School and Personality divisions in the first interview and the Personality division in the second interview.

Percentage of teachers making inferences

The pattern of results for the percentage of teachers who made inferences is fairly consistent in all three interviews (see Table 4). There tended to be a greater percentage of teachers who made no inferences in the Home division and a greater percentage of teachers who made one or more inferences in the School and Personality divisions in all three categories. This pattern became more evident as the school year progressed.

The results in the first interview followed a consistent pattern; however there were exceptions. In the first interview, there was a significantly greater percentage of teachers who failed to make inferences in the Home division of all three categories ($p < .05$ or less). The only divisions in which a significantly greater percentage of teachers made one or more inferences were the School and Personality divisions of the Well category ($p < .01$, $p < .001$). The School and Personality divisions of the Average category corresponded to this pattern although the only significant results were in the School division, when boys were considered separately. The only division which followed this pattern in the Poorly category was the School division for boys and this difference was not significant.

The pattern of results in the second interview was more consistent. Similar to the first interview, there was a greater percentage of teachers making no inferences in the Home division of all three categories. There was a significantly greater number of teachers who made no inferences in the Home division of the Well and Average category for boys and girls considered together and separately ($p < .05$ or less). The pattern was the same in the Poorly category; however, only the results for boys considered separately were significant ($p < .05$). A greater percentage of teachers made one or more inferences in the School and Personality divisions of all three categories. This was true for boys and girls considered both together and separately. The levels of significance were at the .05 level or less in all the divisions except the School and Personality divisions of the Poorly category. Here, the divisions which did not reach significance were the School division for girls considered separately and the Personality division for boys and girls considered together. The only exception to the pattern was in the Personality division of the Poorly category for girls considered separately where a greater number of teachers failed to make inferences.

The pattern of results discussed in the second interview did not change in the third interview. There was still a greater percentage of teachers who made no inferences in the Home division in all three categories; however the differences were significant only in the Average and Poorly categories ($p < .01$). As in the second interview, there was a greater percentage of teachers who made one or more inferences in the School and Personality divisions in all three categories for boys and girls considered together and

separately. The differences were significant at the .05 level or less in both divisions of all three categories except for the Personality division of the Poorly category when girls were considered separately.

Distribution of types of inferences

Although many of the inferences made by the teachers were unique to each category of students, a number of inferences appeared in all three categories (see Table 4). The percentage of teachers who made these inferences in two or more categories will be presented by divisions.

In the Home division, inferences citing parent involvement and a broken home (divorce or separation) were in all three categories. Parent involvement was cited most frequently in the Average category of the second interview. A broken home was cited most frequently in the Poorly category in the second interview. Inferences citing a lack of help at home, lack of an adequate home background, and adoption of the child were present in both the Average and Poorly categories; however all three of these inferences were cited infrequently (less than 10% of the teachers).

Motivation and improvement on the part of the student were the only inferences cited in all three categories of the School division. Both inferences were cited most frequently in the Average category of the third interview. There were five types of inferences which were in the Well and Average categories. These were kindergarten attendance, high degree of activity, quality of work, interest in school activities, and liking school. Of these five, quality of work was cited most frequently in the second and third interviews of the Well category. Liking school was cited

most frequently in the Average category of the second interview. The others were cited infrequently. The types of inferences found in the Average and Poorly categories included: inattentiveness, lack of motivation, no kindergarten attendance, slow (learning), and physical problems. Inattentiveness was cited most frequently in the Poorly category of the second interview. Lack of motivation was most frequently cited in the Poorly category of the first and third interviews. Slow learning and physical problems were mentioned most frequently in the third interview of the Poorly category. No kindergarten attendance was mentioned infrequently.

There were six types of inferences which were common to all three categories in the Personality division. These were quiet, well adjusted, needs adjustment, talks a lot, needs confidence, and immature. Quiet was mentioned most frequently in the Well category of the third interview. Talks a lot was mentioned most frequently in the Average category of the second interview. Immature was mentioned most frequently in the Poorly category of the first and second interview. Needs adjustment and needs confidence were mentioned infrequently.

Discussion

The pattern of results can best be seen in light of the time of year and the context of personal and environmental forces. Personal forces in the teachers' inferences can be found in most of the inferences in the School and Personality division of the Well and Average categories. Inferences in the School division which reflect personal forces include the degree of activity, motivation, quality of work, interest in school

activities, liking school, and improving. Inferences reflecting personal forces in the Personality division include quiet, well adjusted, needs adjusting, talks a lot, needs confidence, and likes to play. All of these inferences attribute responsibility to the student. Environmental forces predominated in the teachers' inferences classified in the Home division of all three categories. Environmental forces also predominated inferences in the Poorly category. These included presence or absence of kindergarten, physical problems, specific reading problems, slow (learning), and inattentive in the School division; and mature and immature in the Personality division. These inferences attribute responsibility to forces which are beyond the student's control.

Total number of inferences

When the total number of inferences made in each interview section are compared, there is a significant increase in the number of inferences from the first to the third interviews. One possible explanation may be the teachers' hesitancy to talk about these relationships with a stranger so early in the year. It is also possible that the teachers are waiting to become better acquainted with their students before making inferences about them. If this is true and causal inferences are the basis for expectations, it is likely that first grade teachers' expectations do not crystalize until later in the year.

In terms of the total number of inferences within each interview, the only significant finding occurred in the second interview. Here, the teachers made more inferences about students they perceived as average.

Apparently, the teachers found it easier to make inferences about students they perceived as average four to six weeks after school started. This could be due to a greater amount of experience with students perceived as average. A more plausible explanation may be due to the teachers' hesitancy to overestimate or underestimate the students' abilities early in the school year.

When the total number of inferences in each category were compared, the greatest number of inferences were made in the Well category. When the categories were considered across interviews, significant results were found only in the Well category. The largest number of inferences in the Well category occurred in the third interview. When these results are taken together with the number of inferences within each interview, it appears that teachers initially make more inferences about students they perceive as average; however, as the year progresses, their attention is increasingly drawn to the top students in the class.

On the basis of these results, it appears that teachers prefer making favorable inferences about their students' progress. The students doing well would respond more favorably to the teacher's questions and assignments, leading teachers to expect superior performance in the future. In addition to responding favorably, the students perceived to be doing well are likely to possess social and personality characteristics such as quiet, mature, and neat. Since the teachers expect superior performance in the future, they would be less hesitant to make inferences about these students. Students perceived to be doing average and poorly would not

possess favorable characteristics to the same degree as students doing well. In addition, students doing average or poorly in school would possess characteristics such as physical problems, slow, inattentive, and immature which would lead the teachers to expect average or poor performance. Since the teachers expect less than superior performance in the future, they may be more hesitant and less willing to make inferences about these students.

The element of social desirability may also have entered into the teachers' inferences. The teachers may have been making an effort to present a favorable impression to the interviewer, especially at the beginning of the year. This may have produced some hesitancy in the teachers making inferences about students whose performance was poor. Social desirability may also have provided some impetus for making inferences about students who were doing well.

Sex differences

While not all the results are significant, the pattern of results for boys and girls is interesting. The results indicate that teachers tended to make more favorable inferences about girls than boys as the year progressed. At the beginning of the year, teachers did not appear to favor either sex; however as the year progressed, favorable inferences tended to be made about girls and unfavorable inferences tended to be made about boys. The differences became more pronounced as the teachers became better acquainted with their students.

Although there was only one significant difference favoring girls in the Well category, several other divisions also favored girls. The Well category, compared to the other two categories, was characterized by favorable inferences. The significant difference was in the Personality division of the second interview. Other divisions, while not significant, which followed this trend were the School division in the first interview, the Home and School divisions of the second interview, and all three divisions in the third interview.

This pattern was reversed in the Average and Poorly categories. These two categories were characterized by unfavorable inferences. In the Average category, there were four significant differences favoring boys. These differences were significant in the School and Personality divisions of the second and third interviews. In the Poorly category, there were three significant differences favoring boys. These differences were in the School division of the second interview and the School and Personality divisions of the third interview. Other differences favoring boys in the Poorly category while not significant, were in the School and Personality divisions of the first interview and the Personality division of the second interview.

The differences in inferences made about girls and boys is not surprising. Girls are typically viewed more favorably than boys, especially in the lower grades. As a result of training at home and values held in the school, girls find it much easier to adjust to school. At home girls are raised to be more docile, sedate, conforming to social expectations, and restraining over physical aggression. In the classroom, female

values such as obedience, decorum, and control of aggressiveness prevail (Ausubel and Robinson, 1969). Girls are more obedient to adults and tend to conform to directives from parents and teachers more readily than boys (Maccoby and Jacklin, 1974). In terms of academic performance, girls outperform boys in measures of reading performance in first grade (Maccoby, 1966; Ausubel and Robinson, 1969; Maccoby and Jacklin, 1974). It is not surprising that girls receive more approval from teachers than boys.

Percentage of teachers who made inferences

The percentage of teachers who made inferences in each of the divisions illustrates the patterns of attribution of responsibility to personal and environmental forces. The teachers tended to attribute responsibility to personal forces in all three categories; however, this tendency decreased somewhat in the Poorly category where attribution of causality to environmental forces increased as the year progressed.

In all three categories, a greater percentage of teachers made no inferences in the Home division. The only instances where these results were not significant were in the Well category in the third interview for boys and girls considered together and separately and in the Poorly category in the second interview for boys and girls considered together and girls considered separately. In these cases, while not significant, the results followed the same trend. Apparently the teachers are more concerned with events which occur in the school. Similar results were found by Glass (1967) studying factors in teachers' perceptions of students.

He found teachers to be primarily concerned with behavior which occurs in school.

Teachers in the Well category tended to attribute responsibility to personal forces within the student to account for high achievement. Large and significant percentages of the teachers consistently made one or more inferences in the School and Personality divisions which most heavily reflected personal forces. Investigation of individual inferences in the Well category lend support to this observation. A number of inferences reflecting personal causality in the Well category were mentioned by a sizeable percentage of teachers. Quality of work, which was in the School division of both the Well and Average categories was mentioned by a greater percentage of teachers in the Well category. Other inferences mentioned frequently by the teachers in the School division of the Well category included improving, independence, and paying attention. Inferences in the Personality division mentioned frequently included quiet, well adjusted, well behaved, and neat appearance.

Teachers did not totally attribute causality to personal forces in the Well category. Performance was also attributed to environmental forces in some inferences. In the School division, attendance in kindergarten and intelligence were frequently mentioned. Maturity was mentioned frequently in the Personality division. These inferences reflect positive benefits due to environmental forces.

In the Average category, teachers tended to attribute causality to personal forces; however, the results are not as consistent as in the Well

category. A significantly greater percentage of teachers made one or more inferences in the School and Personality categories in the second and third interviews. This was not the case in the first interview where there was a significantly greater percentage of teachers who made one or more inferences only in the School division for boys considered separately.

The significant results in the second interview indicate that the teachers are becoming more sensitive to both the school and personality characteristics of their students as they become more acquainted with them. After four to six weeks, the teachers will have learned more about their students. As a result, they would be more likely to make inferences based on both school and personality characteristics. The results of the third interview add support to this conclusion. The third interview was conducted in the middle of the school year. By this time, the teachers had time to become well acquainted with their students. With increased familiarity, the teachers would be likely to make inferences based on both school and personality characteristics.

In terms of personal and environmental forces, the teachers tended to base their inferences more heavily on personal forces. In the School division, inferences mentioned frequently reflecting personal forces included motivated, does good work, and improving. The only frequently mentioned inference reflecting environmental forces was physical problems in the School division. This inference was not mentioned in the Well category. Unlike the inferences reflecting environmental forces in the Well category, physical problems indicate detrimental effects due to environmental forces. In the Personality division, the only inferences

mentioned frequently were quiet and well adjusted, both of which reflected personal forces within the student.

Although the teachers in the Poorly category attributed causality to personal forces, there was evidence of increased attribution of causality to environmental forces. The percentage of teachers making one or more inferences also increased as the year progressed. Unlike the School and Personality division of the Well and Average categories, many of the inferences mentioned frequently in these divisions of the Poorly category reflect environmental forces. In these divisions, there were no instances in the first interview and only three instances in the second interview where a significantly greater percentage of teachers made one or more inferences. This may be due to hes tancy on the part of the teachers to make inferences of failure early in the year. In the third interview, conducted in the middle of the school year, there were large and significant percentages of teachers who made one or more inferences. By this time, the teachers had ample time to become acquainted with their students and form impressions of them. Inferences mentioned frequently in the third interview reflecting personal forces were poor work, not learning to read, improving, and lacks motivation. Only one of these inferences, improving, was positive in nature. Frequently mentioned inferences reflecting environmental forces were slow, physical problems, and inattentive.

Some support for the teachers' tendency to attribute causality to environmental forces for poor performance comes from Beckman (1973). She

led pairs of teachers and observers to believe the teachers were participating in a series of three teaching tasks. The teachers were instructed to teach a fictitious student behind a one-way mirror. She then manipulated the "student's" performance. Nearly all of the teachers who were told that the student's performance was low in all three tasks did not take responsibility for the child's performance and instead attributed causality to the environment. When performance decreased from the first to the third task, the teachers equally accepted responsibility and placed responsibility on the environment. However, few teachers cited personal forces of the student. Brandt, Hayden, and Brophy (1975) obtained similar results using a paradigm resembling Beckman's (1973). In the Brandt, et al. (1975) study, there also was one teacher and one fictitious student; however, there was no observer. They found that the teachers of successful "students" accepted more credit for success than the teachers of unsuccessful "students."

In the present study, the teachers tended not to take either credit or blame for their students' performance. There was an increase in attribution of causality to environmental forces in the Poorly category; however there was still a tendency to also cite personal forces of the student. Differences in the setting for each study may account for the discrepancy between results. Both Beckman (1973) and Brandt, et al. (1975) used a fictitious student in a laboratory setting. The present study was conducted using interviews of teachers in realistic settings where a face-to-face interaction can take place. In the classroom, the teacher may be more inclined to credit the student when she has had a chance to interact

with him. Likewise, if a student is failing, the teacher may not be as likely to blame the student when he is failing.

Ames (1975) found similar results when the teachers were able to interact with their students. Each subject was instructed to teach a short lesson to a student (confederate) in a laboratory setting. Although his study was conducted in a laboratory, each teacher was able to interact with the student. The teachers in his study credited the student for success and they accepted responsibility for his failure. The interaction between the student and teacher in the Ames (1975) study may account for the teachers not blaming the unsuccessful students for their performance. The results of the present study indicate that in the classroom, the teachers refrain not only from blaming the students, but also from crediting themselves when their students are successful.

Conclusions

The present study sought to determine the types of causal inferences made by first grade teachers. In terms of personal and environmental forces, teachers tended to make inferences reflecting personal causality for students perceived as doing well or average. Causal inferences for students perceived to be doing poorly in school also reflected personal causality; however, as the year progressed, causality was increasingly attributed to environmental forces.

The first grade teachers in this study preferred attributing success to personal forces within the child and attributing failure to environmental

forces. They did not tend to take either credit or blame for their students' performance. If a student was doing well or at least average, the teacher credited the performance to the student's own abilities rather than to forces which were beyond the student's control. If a student was doing poorly, the teacher tended to blame poor performance on forces which were beyond the student's control, holding him less responsible for his performance in school. The tendency to cite environmental forces more frequently in the Poorly category indicated the teachers were willing to give credit to the student's abilities when he does well or average and not blame him when his performance is poor.

The pattern of causal inferences indicates that first grade teachers' expectations differentially reflect personal and environmental forces. Expectations of students who are doing well or average in school will reflect personal forces more heavily, while expectations of students whose performance is poor will be based more on environmental forces. If a teacher expects a student to do well or average in first grade, these expectations will be based on characteristics which the teacher believes the student can control. Expectations of students whose performance is poor will be based more heavily on factors which are beyond the student's control.

The time of year may also be important in the formation of the teacher's expectations in first grade. Based on the number of causal inferences made at each point during the year, expectations of academic performance may not crystalize until later in the year, especially for

average or poor students. This may be due to the teachers' readiness to recognize superior performance and a hesitancy to label a student as average or poor. As the year progresses, the teacher's initial inferences will either be confirmed or disproved. If confirmed, these inferences are reinforced and manifested as expectations. If disproved, depending on the teacher, these inferences will be revised or rationalized. If the teacher's perceptions of her students are flexible, she will revise her inferences to more accurately reflect reality and as a result her expectations will change. If her perceptions are rigid, she will either disregard errors in her inferences or look for justification elsewhere, resulting in stereotypical expectations.

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TABLE 1

Total Number of Inferences Across Interviews

$p = .001$ $N = 2321$

1	2	3
533	841	947

Total Number of Inferences Across Categories

$p = .001$ $N = 2321$

1	2	3
907	794	620

TABLE 2

Total Number of Inferences Within Interviews and Across Categories

Interview 1

P = .2586 N = 533

	W	A	P
H	18.00	21.00	10.00
S	131.00	78.00	53.00
P	113.00	60.00	49.00

Interview 2

p = .0373 N = 841

	W	A	P
H	17.00	32.00	30.00
S	164.00	183.00	121.00
P	110.00	117.00	67.00

Interview 3

p = .6581 N = 947

	W	A	P
H	40.00	31.00	31.00
S	183.00	172.00	165.00
P	131.00	100.00	94.00

Total Number of Inferences Across Interview and Within Categories

Well

p = .0516 N = 907

	1	2	3
H	18.00	17.00	40.00
S	131.00	164.00	183.00
P	113.00	110.00	131.00

Average

p = .5252 N = 794

	1	2	3
H	21.00	32.00	31.00
S	78.00	183.00	172.00
P	60.00	117.00	100.00

Poorly

p = .1242 N = 620

	1	2	3
H	10.00	30.00	31.00
S	53.00	121.00	165.00
P	49.00	67.00	94.00

TABLE 3

SEX DIFFERENCES IN EACH DIVISION

	Well M-F	Average M-F	Poorly M-F
1H	p=.8089 N=18 M F 10.00 8.00	p=1.00 N=21 M F 11.00 10.00	p=1.00 N=10 M F 5.00 5.00
1S	p=.3865 N=131 M F 60.00 71.00	p=.7340 N=78 M F 37.00 41.00	p=.4152 N=53 M F 30.00 23.00
1P	p=.00 N=113 M F 57.00 56.00	p=.7008 N=60 M F 32.00 28.00	p=.1495 N=49 M F 30.00 19.00
2H	p=.3336 N=17 M F 6.00 11.00	p=.8540 N=32 M F 17.00 15.00	p=.3645 N=30 M F 12.00 18.00
2S	p=.1813 N=164 M F 73.00 91.00	p=.0079 N=183 ** M F 110.00 73.00	p=.0275 N=121 * M F 73.00 48.00
2P	p=.0268 N=110 * M F 43.00 67.00	p=.0056 N=87 ** M F 57.00 30.00	p=.4706 N=67 M F 37.00 30.00
3H	p=.2678 N=40 M F 16.00 24.00	p=.2811 N=31 M F 12.00 19.00	p=1.00 N=31 M F 15.00 16.00
3S	p=.3014 N=183 M F 84.00 99.00	p=.0256 N=172 * M F 101.00 71.00	p=.0082 N=165 ** M F 100.00 65.00
3P	p=.4919 N=131 M F 61.00 70.00	p=.0473 N=94 * M F 57.00 37.00	p=.0473 N=94 * M F 57.00 37.00

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* $p < .05$

** $p < .01$

TABLE 4

PERCENTAGES GIVING NO INFERENCES[1]

MF	M	F	MF	M	F	MF	M	F
WH p= .0000	WH p= .0000	WH p= .0000	WH p= .0001	WH p= .0000	WH p= .0041	WH p= .2709	WH p= .1298	WH p= .4913
*** 1 2	*** 1 2	*** 1 2	*** 1 2	*** 1 2	** 1 2	1 2	1 2	1 2
74.0 26.0	74.0 26.0	74.0 26.0	73.0 27.0	81.0 19.00	65.00 35.0	56.0 44.0	58.0 42.0	54.0 46.0
WS p= .0003	WS p= .0121	WS p= .0000	WS p= .0000	WS p= .0000	WS p= .0000	WS p= .0000	WS p= .0000	WS p= .0000
*** 1 2	* 1 2	*** 1 2	*** 1 2	*** 1 2	*** 1 2	*** 1 2	*** 1 2	*** 1 2
30.0 70.0	37.0 63.0	22.0 78.0	15.0 85.0	15.0 85.0	15.0 85.0	12.0 88.0	12.0 88.0	12.0 88.0
WP p= .0005	WP p= .0121	WP p= .0000	WP p= .0002	WP p= .0001	WP p= .0005	WP p= .0000	WP p= .0001	WP p= .0000
*** 1 2	* 1 2	*** 1 2	*** 1 2	*** 1 2	*** 1 2	*** 1 2	*** 1 2	*** 1 2
31.0 69.0	37.0 63.0	26.0 74.0	29.0 71.0	27.0 73.0	31.0 69.0	21.0 79.0	27.0 73.0	15.0 85.0
AH p= .0000	AH p= .0000	AH p= .0000	AH p= .0014	AH p= .0204	AH p= .0001	AH p= .0041	AH p= .0041	AH p= .0041
*** 1 2	*** 1 2	*** 1 2	** 1 2	* 1 2	*** 1 2	** 1 2	** 1 2	** 1 2
74.0 26.0	74.0 26.0	74.0 26.0	67.0 33.0	62.0 38.0	73.0 27.0	65.0 35.0	65.0 35.0	65.0 35.0
AS p =.7621	AS p= .0121	AS p= .0854	AS p= .0000	AS p= .0000	AS p= .0005	AS p= .0000	AS p= .0000	AS p= .0001
1 2	* 1 2	1 2	*** 1 2	*** 1 2	*** 1 2	*** 1 2	*** 1 2	*** 1 2
48.0 52.0	37.0 63.0	59.0 41.0	21.0 79.0	12.0 88.0	31.0 69.0	23.0 77.0	19.0 81.0	27.0 73.0
AP p= .7621	AP p= .7621	AP p= .7621	AP p= .0002	AP p= .0000	AP p= .0041	AP p= .0000	AP p= .0000	AP p= .0041
1 2	1 2	1 2	*** 1 2	*** 1 2	** 1 2	*** 1 2	*** 1 2	** 1 2
48.0 52.0	48.0 52.0	48.0 52.0	29.0 71.0	23.0 77.0	35.0 65.0	25.0 75.0	15.0 85.0	35.0 65.0
PH p = .0000	PH p = .0000	PH p = .0000	PH p = .0645	PH p= .0204	PH p= .1298	PH p= .0041	PH p= .0041	PH p = .0041
*** 1 2	*** 1 2	*** 1 2	1 2	* 1 2	1 2	** 1 2	** 1 2	** 1 2
87.0 13.0	85.0 15.0	89.0 11.0	60.0 40.0	62.0 38.0	58.0 42.0	65.0 35.0	65.0 35.0	65.0 35.0
PS p= .7621	PS p= .7621	PS p= .2709	PS p= .0204	PS p= .0005	PS p= .4913	PS p= .0000	PS p= .0000	PS p= .0000
1 2	1 2	1 2	* 1 2	*** 1 2	1 2	*** 1 2	*** 1 2	*** 1 2
52.0 48.0	48.0 52.0	56.0 44.0	38.0 62.0	31.0 69.0	46.0 54.0	15.0 85.0	8.0 92.0	73.0 77.0
PP p= .2709	PP p= .7621	PP p= .0854	PP p= .4913	PP p= .0041	PP p= .1298	PP p= .0014	PP p= .0000	PP p= .1298
1 2	1 2	1 2	1 2	** 1 2	1 2	** 1 2	*** 1 2	1 2
56.0 44.0	52.0 48.0	59.0 41.0	46.0 54.0	35.0 65.0	58.0 42.0	33.0 67.0	23.0 77.0	42.0 58.0

[1] 1 = no inferences
2 = one or more inferences

* p < .05

** p < .01

*** p < .001

TABLE 5

	WELL									AVERAGE									POOR								
	MF	M	F	MF	M	F	MF	M	F	MF	M	F	MF	M	F	MF	M	F	MF	M	F	MF	M	F	MF	M	F
Home																											
1. Parents	4	4	4	8	12	4	12	15	8	6	4	7	13	15	12	8	8	8	0	0	0	4	4	4	6	8	4
2. Home	6	7	4	2	0	4	6	4	8	4	4	4	8	8	8	6	4	8	6	11	0	2	4	0	2	4	0
3. Broken	0	0	0	0	0	0	6	0	12	0	0	0	6	4	8	8	4	12	4	0	7	10	4	15	4	4	4
4. Taught	4	0	7	0	0	0	2	0	4	0	0	0	4	4	4	4	4	4	0	0	0	2	0	4	6	4	8
5. Good	11	11	11	10	8	12	13	12	15	6	4	7	2	0	4	0	0	0	4	4	4	0	0	0	4	4	4
6. Total																											
School																											
1. Was in	20	26	15	6	8	4	8	8	8	9	7	11	4	4	4	4	4	4	13	19	7	21	31	12	31	35	27
2. Active	9	7	11	6	8	4	4	4	4	6	7	4	6	8	4	4	8	0	0	0	0	2	0	4	25	31	19
3. Motivated	9	4	15	12	8	15	6	4	8	11	15	7	37	46	27	17	19	15	6	11	0	13	15	12	8	4	12
4. Does	35	33	37	44	50	38	50	42	58	9	7	11	23	23	23	35	38	31	11	11	11	12	15	8	29	38	19
5. Inter	7	7	7	8	4	12	10	12	8	4	4	4	2	4	0	6	8	4	20	15	26	23	23	23	25	35	15
6. Likes	7	4	11	6	0	12	2	0	4	0	0	0	10	8	12	0	0	0	0	0	0	10	12	8	19	23	15
7. Improv	2	4	0	8	8	8	23	19	27	2	4	0	12	12	12	25	19	31	17	19	15	27	27	23	8	12	4
8. Intell	17	19	15	13	19	8	19	15	23	9	7	11	8	12	4	4	4	4	13	11	15	4	4	4	13	12	15
9. Indep	11	4	19	6	8	4	12	8	15	6	7	4	8	8	8	4	4	4	4	4	4	2	4	0	2	4	0
10. Pays	31	37	26	15	15	15	4	8	0	4	7	0	4	4	4	0	0	0									
11. Helps	7	0	15	4	0	8	4	4	4	7	7	7	6	8	4	0	0	0									
12. Parti	4	4	4	8	4	12	6	4	8	6	11	0	15	23	8	15	19	12									
13. Pride	2	0	4	4	4	4	2	4	0	0	0	0	6	8	8	2	4	0									
14. All	4	7	0	0	0	0	6	8	4	0	0	0	4	4	4	0	0	0									
15. T exp	6	4	7	6	4	8	2	4	0	7	4	11	6	8	4	4	4	4									
16. Comm	2	4	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0									
17. Good Vo	0	0	0	6	4	8	2	0	4	2	4	0	0	0	0	8	4	12									
18. Good Co	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0									
19. Total																											
Personality																											
1. Quiet	26	26	26	37	31	42	21	8	35	19	11	26	29	15	42	23	19	27	6	7	4	10	8	12	13	12	15
2. Well adj	13	15	11	17	8	27	29	35	23	9	11	7	15	12	19	8	8	8	6	4	7	0	0	0	10	8	12
3. Needs to	2	4	0	2	4	0	2	4	0	2	4	0	4	4	4	2	4	0	4	4	4	4	0	8	2	4	0
4. Talks	11	19	4	10	15	4	12	4	19	13	15	11	17	19	15	10	15	4	2	0	4	6	8	4	13	8	19
5. Needs con	0	0	0	4	0	8	6	4	8	4	4	4	6	8	4	2	4	0	2	4	0	4	4	4	4	8	0
6. Immature	0	0	0	2	4	0	6	4	8	4	0	7	15	19	12	8	12	4	26	30	22	29	31	27	19	23	15
7. Mature	17	19	15	12	12	12	8	0	15	0	0	0	0	0	0	6	4	8	6	11	0	6	12	0	4	4	4
8. Sweet	13	4	22	13	4	23	8	4	12	2	0	4	2	0	4	0	0	0	7	7	7	2	0	4	8	15	0
9. Outgoing	11	7	15	2	0	4	2	0	4										7	11	4	0	0	0	0	0	0
10. Infl	7	4	11	4	4	4	4	4	4										2	4	0	0	0	0	0	0	0
11. Well be	15	11	19	13	15	12	13	12	15										4	0	7	4	4	4	0	0	0
12. Aggr	3	7	0	4	0	8	0	0	0																		
13. Neat	24	19	30	8	4	12	8	12	4																		
14. Likes	2	4	0	4	8	0	6	8	4																		
15. Perf	0	0	0	0	0	0	4	4	4																		
16. Coming	0	0	0	0	0	0	0	0	0																		
117. Total																											

Appendix

Teacher Inference Coding Instrument

The Teacher Inference Coding Instrument is designed to record inferences made by teachers regarding their students' academic performance. An inference is a statement made by the teacher which reflects a cause and effect relationship. The conclusions of the teachers' inferences are represented by the three categories of inferences: Well, Average, and Poorly. Each of these categories refer to the students' academic performance. Within each category, there are three divisions: Home, School, and Personality. Each division contains various types of premises which share a common source. For example if a premise is related to the student's home life, it is included in the Home division.

Only students who are not repeating first grade are coded for the presence or absence of causal inferences. Inferences concerning repeating students are not included. Non-repeating students are identified by the presence of a three digit identification number by their names. Repeating students can be identified by the absence of a three digit identification number by their names.

Each coding sheet is designed to be used for one teacher in one set of interviews. The teacher's number is to be entered in the space labeled Teacher no. on the right hand side of the page. The set number, indicating which interview set is being coded, is to be entered in the space labeled Set no. on the right hand side of the page, next to Teacher no.

To record an inference, a check mark should be placed in the appropriate row to describe the type of inference made by the teacher. If the inference is made about a boy, the check should be placed in the column

labeled M. If the inference is made about a girl, the column labeled F should be checked. The purpose of these columns is to indicate the presence or absence of a listed inference.

At the end of each division, there is a row labeled Total no. of inferences. This row is used to indicate the total number of inferences mentioned by the teacher which are applicable to each division. The total number of inferences includes the total number of times the teacher mentioned inferences listed in the division plus the total number of inferences which apply to the division but are not listed on the coding sheet. The total number of inferences in the division made about boys is listed in the column labeled M and the total number of inferences in the division made about girls are listed in the column labeled F. A description of each of the types of inferences and when each should be coded is given below.

The Well Category

An inference is included in the Well category if the conclusion of the inference indicates a superior performance. A superior performance can be indicated in one of two ways: in the quality of the student's work and the student's position in relation to the rest of the class. Superior quality of the student's work will be indicated by phrases such as "doing well," "doing very well," "will do quite well," "will do very well," will do a top job," will do a very good job," "doing excellent work," "top score on the readiness test," or "will be sent to the split class." The split class is a class for advanced students. Superior performance in terms of a student's position in relation to the rest of the class will

be indicated by phrases such as "good student," "excellent student," "top of the class," "one of the better students," "in the top (reading) group," "in the upper (reading) group," "will be in the top (reading) group," "will be a top student," "may be the best," or "will be first on the achievement test."

Within the Well category, there are three divisions. These are Home, School, and Personality. Each of these divisions indicate the source of the inferences. For example, if a teacher says a student will do well because the parents give a lot of help at home, this inference would be coded in the Home division. The Home division includes those inferences which are related to the student's home life. The School division includes those inferences which are related to work habits and school or classroom activities. The inferences in the Personality division describe the student's personality and social characteristics.

Within the Home division of the Well category, there are five types of inferences which are related to the student's home life. They are described below.

1. Parents involved - This inference indicates that the parents are taking an active part in the student's education by helping the child at home. Phrases such as "parents back the school," "parents are interested," or "parents help at home" would be coded as Parents involved.
2. Home problems - As the phrase suggests, this phrase indicates there are problems at home, including emotional problems. This does not include inferences describing a broken home, a divorce, or the parents separating. Phrases such as "home problems," "problems at home,"

"emotional problems at home," or "has had a sad home life" would be coded as Home problems.

3. Broken home - This phrase indicates that the parents have been divorced or separated.
4. Taught sibling - This inference is to be coded if the teacher mentions that she taught the student's older brother and/or sister or compares the student to an older sibling.
5. Good background - This inference indicates that the student has a good home background. Phrases such as "good home background," "good training at home," and "good family background" would be coded as Good background.

The School division of the Well category contains eighteen inferences which are related to work habits and school or classroom activities. They are described below.

1. Was in K - This inference is coded if the teacher mentions that the student attended kindergarten.
2. Active - This inference is coded if the teacher mentions that the child is active.
3. Motivated - This inference indicates that the teacher feels that the student has motivation. Phrases such as "tries," "tries hard," "applies him/herself," "wants to do well," "wants to succeed," "eager," or "motivated" would be coded as Motivated.
4. Does good work - This inference is coded when the teacher mentions, with detail, that the student is doing work which she feels is of superior quality. Phrases such as "good worker," "can do anything asked of him," "reads well," "writes well," and "draws well" would be

coded here.

5. Interested - This inference is to be coded when the teacher describes the student as "interested."

6. Likes school - This inference indicates that the student enjoys school. Phrases including "enthusiastic," "enthusiastic about school," and "likes school" would be coded here.

7. Improving - This inference indicates that the student has improved. Phrases such as "has improved," "improving," "has shown improvement," "learning to read," or "has moved to the top group" would be coded as Improving.

8. Intelligent - This inference is coded when the teacher describes a student with phrases such as "bright," "smart," "has ability," or "intelligent."

9. Independent - This inference is coded when the teacher describes the student as "independent," or "hardly needs directions."

10. Pays attention - As the phrase indicates, this inference describes the student who pays attention to the teacher. In addition to "pays attention," phrases such as "follows directions," "attentive," "alert," "listens," and "aware" would also be coded here.

11. Helps others - This inference describes the student who helps the other students in the room.

12. Participates - This phrase describes the student who participates in any of the classroom activities. Phrases such as "participates," "responds to questions," and "contributes a lot" would be coded here.

13. Pride in work - This inference should be coded if the teacher uses phrases such as "takes pride in his/her work."

14. All around student - This inference is to be coded if the teacher uses the description "all around student."
15. T expects well - This inference is coded if the teacher states that she expects the student to do well.
16. Communicates - This inference is coded if the teacher describes the student as possessing the ability to communicate.
17. Good vocabulary - This inference is coded when the teacher states that the student possesses a good vocabulary.
18. Good coordination - This inference is coded if the student is described as possessing good motor coordination.

Within the Personality division of the Well category, there are 16 types of inferences which describe the child's personality or social characteristics. They are described below.

1. Quiet - This inference is coded if the teacher describes the student as "quiet," "shy," "timid," or "withdrawn."
2. Well adjusted - This inference indicates that the student has adjusted to school. Phrases such as "well adjusted," "has become adjusted," "happy," and "gets along with others" would be coded here.
3. Needs to adjust - This inference describes the student who, in the teacher's estimation, has not yet adjusted to school. Phrases such as "doesn't get along with others," and "has not adjusted to school," as well as "needs to adjust" would be coded here.
4. Talks a lot - As this inference indicates, the student is described as one who talks a lot. Phrases such as "talks," "talks too much," as well as "talks a lot" would be coded here.

5. Needs confidence - This inference is coded if the teacher states that the student needs confidence or lacks confidence.
6. Immature - This inference is coded if the teacher states that the student is immature.
7. Mature - This inference is coded if the teacher states that the student is mature.
8. Sweet - This inference is coded if the teacher uses phrases such as "has nice manners," "nice disposition," "polite," and "nice" as well as "sweet."
9. Outgoing - This inference is coded if the teacher uses phrases such as "outgoing," or "friendly."
10. Influential - This inference is coded if the teacher uses phrases such as "influential," "will be a leader," or "is a leader."
11. Well behaved - As the phrase indicates, this inference describes a student who is well behaved. In addition to "well behaved," phrases such as "good behavior," "doesn't give the teacher trouble," and "doesn't cause a disturbance" are coded here.
12. Aggressive - This inference is coded if the teacher describes the student as "aggressive."
13. Neat appearance - This inference is coded if the teacher comments favorably on the student's appearance using phrases such as "neat," "attractive," or "dresses well."
14. Likes to play - This inference is coded if the teacher uses phrases such as "plays," "would rather play," and "plays a lot," as well as "likes to play."

15. Perfectionist - This inference is coded if the teacher describes the student as a perfectionist.

16. Coming out of his/her shell - This inference is coded if the teacher describes the student as less quiet, shy, timid, or withdrawn; or if the teacher uses the phrase "coming out of his/her shell."

The Average Category

An inference is included in the Average category if the outcome of the inference indicates an average performance. An average performance can be indicated in one of two ways: the quality of the student's work and where the student is in relation to the rest of the class. Average quality of the student's work will be indicated by phrases such as "doing average work," "will do average work," "will do OK," "will do all right," or "reading average." Average performance in terms of the student's position in relation to the rest of the class will be indicated by phrases which describe him as an average student, in the middle group, or scoring average on the readiness test. Phrases which describe an average student include "a fair student," "in the middle of the class," "high normal," "real good average," "a little above average," "a little below average," or "low average." Phrases describing the middle group include "the average group," "lower middle group," "may have to go to the average group," and "will move to the middle group." Phrases which describe an average score on the readiness test include "scored average," "scored above average," "scored high average," and "scored low normal."

The Average category contains three divisions. These three divisions are Home, School, and Personality. As in the Well category, each of these

divisions indicates the source of the inference. The names and definitions of the divisions described in the Well category are identical for the Average category. Many of the inferences in the Average category have definitions which are identical to inferences in the Well category. These will be noted in the inferences listed below.

The Home division of the Average category contains eight inferences which are related to the student's home life. They are described below.

1. Parents involved - See Parents involved, p. 3.
2. Home problems - See Home problems, p. 3.
3. Broken home - See Broken home, p. 4.
4. Lacks help at home - This inference describes the student who is not receiving help at home. Phrases such as "no one at home to help" and "lacks help at home" are coded here.
5. Lacks background - This inference describes the student who the teacher feels lacks the home background necessary for first grade. Phrases such as "lacks background at home," and "lacks training at home," as well as "lacks background" are coded here.
6. Smart siblings - This inference is coded when the teacher compares a student with a sibling using phrases such as "her brother was smart" and "his sister was smart."
7. Adopted - This inference is coded if the teacher states that the student is adopted or not living with his/her natural parents.
8. Parents not around - This inference is coded if the teacher states that the student's parents do not spend time with the child because of work schedules or extenuating circumstances such as "the father is in Viet Nam."

The School division of the Average category contains eighteen inferences which are related to the student's work habits and school or classroom activities. They are described below.

1. Was in K - See Was in K, p. 4.
2. Active - See Active, p. 4.
3. Motivated - See Motivated, p. 4.
4. Does good work - See Does good work, p. 4.
5. Interested - See Interested, p. 5.
6. Likes school - See Likes school, p. 5.
7. Improving - The only difference in definition between this inference and Improving on p. 5 is that the "has moved to middle group" would be coded here instead of "has moved to top group."
8. Inattentive - This inference describes the student who does not pay attention during class. Phrases such as "doesn't follow directions," "doesn't pay attention," "short attention span," and "doesn't concentrate" as well as "inattentive" would be coded here.
9. Lacks motivation - As the inference states, this inference describes the student who is not motivated to do school work. Phrases such as "needs motivation," "needs to be pushed," "doesn't want to do the work," "doesn't care," and "doesn't try" as well as "lacks motivation" would be coded here.
10. No K - This inference is coded if the teacher states that the student did not attend kindergarten.
11. Slow - This inference is coded if the student is described as lacking ability to do better. Phrases such as "slow" and "lacks ability to do better" would be coded here.

12. Physical problems - This inference is coded if the teacher associates a physical problem with the student. Physical problems include descriptions such as speech impediment, brain damage, or frequently ill.
13. Work not neat - This inference is coded if the teacher describes the student's work as "not neat," "not neat enough," or "messy."
14. Didn't score as high as T thought - This inference is coded if the teacher states that she expected the student to score higher than he/she did.
15. Finishes work - This inference describes the student who finishes his work assignments. In addition to "finishes work," phrases such as "completes the work on time," or "finishes the work promptly" would be coded here.
16. Hasn't shown progress - This inference is coded if the teacher states that the student has not demonstrated progress in school.
17. Specific reading problems - This inference is coded if the teacher mentions specific reading problems such as "doesn't have phonics skills," or "doesn't know the alphabet."
18. Lacks vocabulary - This inference is coded if the teacher states that the student lacks the vocabulary to do better work.

The Personality division of the Average category contains eight inferences which describe the child's personality or social characteristics. They are described below.

1. Quiet - See Quiet, p. 6.
2. Well adjusted - See Well adjusted, p. 6.
3. Needs to adjust - See Needs to adjust, p. 6.
4. Talks a lot - See Talks a lot, p. 6.

5. Needs confidence - In addition to the definition for Needs confidence on p. 7, phrases such as "lac[illegible] confidence in the top group" would be coded here.
6. Immature - See Immature, p. 7.
7. Gaining confidence - This inference is coded if the teacher states that the student is gaining confidence or has gained confidence.
8. Hasn't found self - This inference is coded if the teacher states that the student has not found him/herself or does not know "what school is all about."

The Poorly Category

An inference is included in the Poorly category if the outcome of the inference indicates a poor performance. Poor performance can be indicated in one of three ways: prediction of failure, the student's position in relation to the rest of the class, and the quality of his work. Phrases which predict failure include "the student will fail," "will have to repeat first grade," "will have difficulties doing first grade work," "not ready for first grade," and "won't make second grade." Descriptions of the student's position in relation to the rest of the class include "in the bottom group," "in the low group," "moved from the middle to the lowest group," "at the bottom of the class," "far behind the rest," and "slower than the rest." Phrases describing the quality of the student's work include "having difficulty academically," "low score," "score D (or E) on the readiness test," "will be a low achiever," and "in the special reading class."

The Poorly category contains the same three divisions as the Well and Average categories: Home, School, and Personality. The definitions of the divisions in the Poorly category are identical to the Well and Average categories. Many of the inferences in the Poorly category have definitions which are identical to inferences in the Well and Average categories. These will be noted in the inferences listed below.

The Home division of the Poorly category contains seven inferences which are related to the student's home. They are described below.

1. Parents involved - See Parents involved, p. 3.
2. Overprotected - This inference is coded if the teacher describes the student with phrases such as "babied at home," and "spoiled" as well as "overprotected."
3. Broken home - See Broken home, p. 4.
4. Lacks help at home - See Lacks help at home, p. 9.
5. Lacks background - See Lacks background, p. 9.
6. Parents not cooperating - This inference is coded if the teacher states that the parents are not cooperating with the school or ignoring recommendations made by the teacher or the school.
7. Adopted - See Adopted, p. 9.

The School division of the Poorly category cotains nine inferences which are related to the student's work habits and school or classroom activities. They are described below.

1. Slow - See Slow, p. 10.
2. Not learning to read - This inference is coded if the teacher states that the student has not yet learned to read.

3. Motivated - See Motivated, p. 4.
4. Work is poor - This inference indicates that the teacher feels the student's work in class is poor. Phrases such as "doesn't do the work," "doesn't complete the work," "poor reader," and "can't interpret pictures" as well as "work is poor" would be coded here.
5. Physical problems - See Physical problems, p. 11.
6. Improving - The only difference in definition between this inference and Improving on p. 5 is that this inference does not include phrases which refer to promotions in group status.
7. Inattentive - See Inattentive, p. 10.
8. Lacks motivation - See Lacks motivation, p. 10.
9. No K - See No K, p. 10.

The Personality division of the Poorly category contains eleven inferences which are related to the student's personality or social characteristics. They are described below.

1. Quiet - See Quiet, p. 6.
2. Well adjusted - See Well adjusted, p. 6.
3. Needs to adjust - See Needs to adjust, p. 6.
4. Talks a lot - See Talks a lot, p. 6.
5. Needs confidence - See Needs confidence, p. 7.
6. Immature - See Immature, p. 7.
7. Poor conduct - This inference describes the student who, in the teacher's estimation is a behavior problem. Phrases such as "gets in trouble," "discipline problems," and "trouble maker" as well as "poor conduct," and "behavior problems" would be coded here.

8. Likes to play - See Likes to play, p. 7.

9. Hasn't settled down - This inference is coded if the teacher states that the student has not settled down or needs to settle down.

10. Stubborn - This inference is coded if the teacher describes the student as stubborn.

11. Needs affection - This inference is coded if the teacher states that the student needs or demands affection from the teacher.